

WARNING & SAFEGUARDS

Read and follow the guidelines to ensure the proper use and application of this Rio® Plus pump. Failure to follow these guidelines may result in damage to the aquatic environment and serious injury.

Operation and safety Precautions

The National Code requires that a GFCI (Ground Fault Circuit Interrupter) be utilized in the branch circuit supplying all water pump and aquarium electrical equipment. If you do not have a GFCI, please see your local electrical supplier for this device.

Important Warning and Safeguards

- Do not operate pump with Rio® Plus pump without being fully submersed at all times. Not doing so can cause permanent damage to the pump.
- Never operate Rio® Plus pump with an electronic wave maker or timing device. As such devices will cause permanent damage to the pump and/or demagnetize the magnetic impeller.
- Replace the impeller and or shaft if there is any excess signs of wear
- Prior to maintenance on any electrical aquarium appliance or maintenance to the aquarium, you must disconnect all electrical aquarium devices.

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- Routine maintenance is required to ensure the maximum performance and the longevity of Rio® Plus pump. See Maintenance Guidelines
- The national code requires all aquarium equipment to be plugged into a GFCI (Ground Fault circuit Interpreter) electrical outlet
- Do not operate if wire is damaged
- Do not plug into an extension cord
- Failure to use the main housing strainer and or filter conversion kit may allow sand and or debris into the impeller chamber thus causing permanent damage to the impeller, ceramic shaft and or the pump
- Do not plug into a power strip. Always plug the pump directly to a GFCI outlet using a drip loop.
- Rio® plus pump is designed to run completely submerged in water. Do not operate pump outside of water! This pump should be submerged in water before connecting to a power source.
- Start Pump in Water ONLY. DO NOT Run Pump in Air
- Rio® Plus pump may be utilized in either fresh water or salt water but not in foreign fluids, flammable liquids or any chemical

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WARNINGS!

This product may contain chemicals known to the state of California to cause cancer and or birth defects or other reproductive harm. Wash your hand after handling this product.

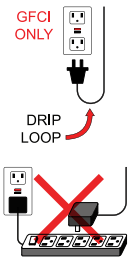
It is your sole responsibilities to verify that the plug and the receptacle are clean and free of moisture and salt build up at all times. The receptacle must be free of water, salt, calcium, magnesium and dust. Failure to do so can cause fire, damage to property, permanent damage to the product and personal injury not limited to loss of life.

Do not plug into extension cord/power strip.

A drip loop must be used when plugging all electrical aquarium devices. A drip loop is that part of the cord hanging below the receptacle.

The national code requires that a GFCI (Ground fault circuit interrupter) be used in the branch circuit supplying all power to water pumps and electrical aquarium equipment. If you do not have a GFCI, have an electrician install one prior to operating any aquarium component.

Note: It is important that the right pump and flow rate is being used for the given specific application. Use the flow chart to determine the proper size pump and tubing to be used for given application.



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Warning! Buyer/user assumes all responsibility for safety and proper use not in accordance with the directions and safety labels.



Rio+ Aqua Pump/PowerHead



Technological Aquatic Associated Manufacturing
Fax: (805) 383-3565. www.riopumps.com

MAINTENANCE

Preventing debris and free floating material from entering your Rio® plus pump is of utmost importance to the longevity of your pump. Your pump requires regular cleaning to maintain a steady water flow. Note: Gravel, sand and calcium deposits will also diminish/ damage the longevity of Rio® Plus pump and impeller.

- IMPORTANT: You must disconnect all electrical power to the aquarium and water pump before beginning the maintenance on any electrical equipment including Rio® Plus pump.
- Do not use any type of soap or detergent to clean the Rio® Plus pump and parts. Remove main housing strainer. Clean and rinse of all dirt and debris. Carefully turn housing endcap retainer counter-clockwise to disconnect. Housing endcap, ceramic shaft and impeller may now be removed from motor housing. Rinse all dirt and grime off the impeller before reassembling. In environments that have a high amount of calcium it may be necessary to clean impeller in 1 part vinegar 3 parts water solution, this will breakdown calcium. Let soak for a minimum of 15 minutes. Clean well then verify that the impeller spins freely on the shaft. Note: Replace impeller or ceramic shaft if any signs of excess wear on impeller, ceramic shaft and/or shaft endcap.
- After cleaning, reassemble impeller into the pump and fasten by turning housing endcap and housing endcap retainer until snug to assure a proper seal.

Shaft endcap must be on each end of shaft. Rio® Plus pump will not restart if impeller is not positioned or assembled correctly.

- Impeller may need to be replaced periodically to maintain a steady output flow. Rio® Plus pump replacement parts, are sold at your local pet dealer or call us, TAAM® for more information for purchasing Rio® Plus pump replacement parts.
- Do not tamper with or replace the power cord of this appliance. If the cord is damaged, the appliance should be discarded.

LIMITED WARRANTY

TAAM® warrants that Rio® Plus pump is free from defects for a period of 6 months from the initial date of purchase shown on the original cash register receipt. TAAM® disclaims all other warranties of merchantability and/or fitness for a particular purpose. Although this limited warranty may give you specific rights, you may have other rights that may vary from state to state. This warranty is void if the failure of the pump or any part, sealant or component there of is due to (i) misuse, (ii) tampering, (iii) negligence, (iv) misapplication, (v) abuse, (vi) accident and/or (vii) failure to properly (a) maintain, (b) clean, (c) keep pump fully submersed and/or use the pump with a Ground Fault Circuit Interrupter (GFCI).

CONSUMER REMEDIES

TAAM®'s entire liability and your sole and exclusive remedy shall be either repair or replacement of Rio® Plus pump only if you return the defective unit directly to

TAAM® with the original receipt in its original box along with seven dollars (\$7.00) for shipping and handling. Do not send Rio® Plus pump by insured mail. You may send your returns or replacements by UPS if requiring a signature upon arrival. Any replaced unit will be warranted for the remaining time of the original warranty period. In no event shall any shipping charges be reimbursed. In no event will TAAM® be liable for any consequential or incidental damages, including but not limited to, lost sea life, personal injury, property damage, equipment damage, lost profits, lost wages, lost savings, lost income, etc., arising out of the use of Rio® Plus pump. Some states do not allow for the limitation or exclusion of liability for incidental or consequential damages, so the above exclusion may not apply to you.

RETURNS

Please contact our service center at (805) 383-3566 ext. 102 or fax (805) 383-3565 to arrange repair and/or replacement. Please allow 4-6 weeks for all returns.

WARRANTY CARD

Please go to our website, to download Warranty Card. http://www.riopumps.com/Resources_folder/Warranty.html

Fill out this warranty card and mail it with PROOF OF PURCHASE within 15 days of purchase

FEATURE

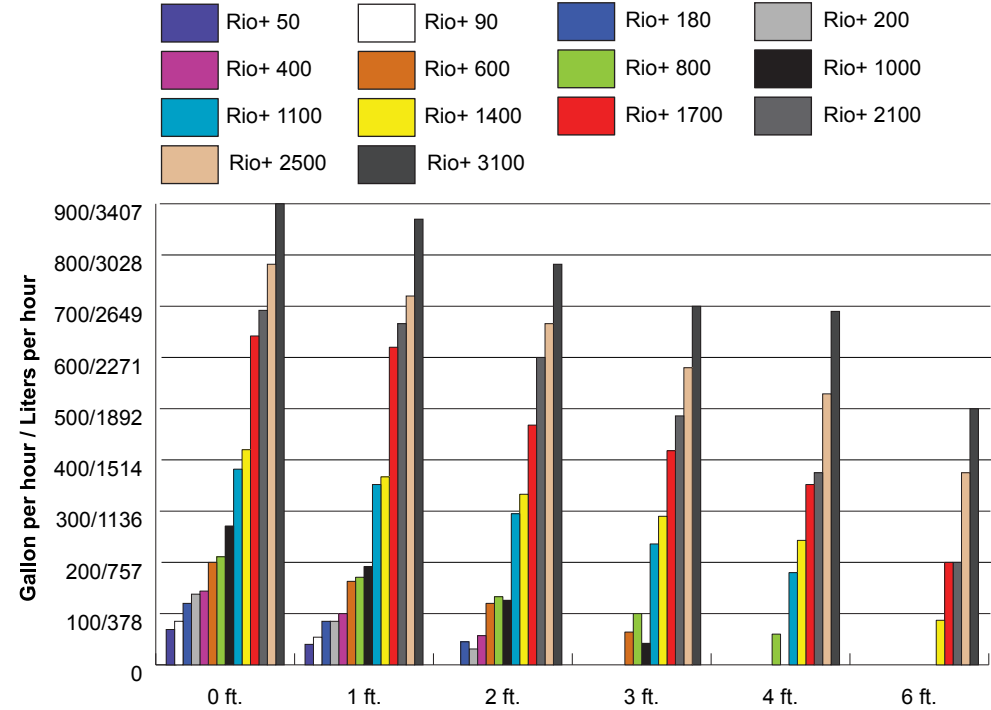
- Enhanced Motor Design
- Versatile
- High Flow Rate
- Low Energy Consumption
- Silent and Cool Operation
- Fully Submersible
- Magnetic Rotor Technology
- Ceramic Shaft and Bearings
- Marine and Freshwater Environments

The new and improved Rio® Plus Aqua Pumps and Powerheads is a versatile water pump system designed with high efficiency and reliability. Designed with next generation magnetic-rotor technology, the Rio® Plus Aqua Pumps and Powerheads offer the best high performance solution in the aquarium industry. The largest and most powerful models provide excellent performance within wet and dry filters and in venturi protein skimmers when high pressure and flow rates are needed. Reliable and quiet, Rio® Plus Aqua Pumps and Powerheads do not use oil to operate so they cannot contaminate the aquatic environment. A full range of Rio® Plus Aqua Pumps and Powerheads, designed to work in a variety of aquatic environments, gives hobbyists superior selection with competitive price.

FLOW CHART

Item #	Watts		Dimensions L x W x H (approx.) inches/mm	Gallons per hour/liters per hour						Output O.D.	Max. head	Max. Depth from Water Level
	115V/ 60Hz	220V/ 50Hz		0ft./cm	1ft./cm	2ft./cm	3ft./cm	4ft./cm	6ft./cm			
Rio+ 50 (UL)	5.3	3.1	2.3 × 1.5 × 1.8/ 59 × 37 × 46	69/262	40/152						2ft./60cm	10in -36 in (25 cm - 91.4 cm)
Rio+ 90 (UL)	3	1.5		85/323	54/205							
Rio+ 180 (UL)	4	1.8		120/456	85/323	45/171					3ft./90cm	
Rio+ 200 (UL)	8	2.4	2.8 × 1.7 × 2.4/ 71 × 44 × 60	138/524	85/323	31/118				13mm 0.5in	2ft./60cm	
Rio+ 400 (UL)	10	2.9		144/547	100/385	57/216					3.5ft./105cm	
Rio+ 600 (UL/PT)	10	4.5		200/760	163/619	120/456	64/243				4ft./120cm	
Rio+ 800 (UL/PT)	13	5.4		211/801	171/650	133/506	100/385	60/228			5ft./150cm	
Rio+ 1000 UL	13	11.5	3.9 × 2.1 × 2.5/ 99 × 53 × 65	271/1030	192/730	126/479	42/160			16mm 0.63in	4.6ft./140cm	
Rio+ 1100 UL	22	17	5 × 2.6 × 3.3/ 126 × 65 × 83	382/1451	352/1327	295/1121	236/896	180/684			6ft./180cm	
Rio+ 1400 UL	27	18.5		420/1596	367/1395	333/1265	290/1102	243/923	87/330		6.5ft./195cm	
Rio+ 1700 UL	31	22	5.9 × 2.8 × 3.7/ 150 × 70 × 95	642/2439	620/2356	486/1847	418/1588	352/1338	180/684		8ft./240cm	0.75in
Rio+ 2100 UL	40	29		692/2630	666/2530	600/2280	486/1847	375/1425	200/760			
Rio+ 2500 UL	55	29.5		782/2972	720/2736	666/2531	580/2204	529/2010	375/1425		10ft./300cm	
Rio+ 3100 UL	73	53	6.4 × 4.3 × 3.1/ 163 × 109 × 80	900/3420	870/3306	782/2972	700/2660	690/2622	500/1900	25.4mm 1 in		

FLOW CHART GRAPH



OPTIONAL PART:

Magnet Mount

Item No.	Dimension L x H x W (approx.)	Rio® Plus	Glass Thickness	UPC No. 0006760
MM100	1.9 x 3.25 x 0.83in (5 x 8.3 x 2.1cm)	1000	3/8in (10mm)	0870 6
MM200				0846 1
MM300		1100-1400	1/2in (12mm)	0847 8
MM350		1700-2500		0869 0
MM500	2.5 x 4.3in x 1.1in (6.5 x 11x 2.9cm)	3100	3/4in (19mm)	0848 5



Needle Wheel Impeller • Create finest bubbles & Ceramic bearing.

Rio Needle wheel impellers are designed to create finest bubbles creating extra surface area and contact time in the skimmer. Made with the finest materials all impellers made with ceramic bearing embedded in the rotor for longevity and durability. Combine with newly designed intake venturi and you can turbo charge your skimmer. Rio Needle wheel impellers can be retrofitted to operate on Rio plus pumps models 1000-3100 HP.

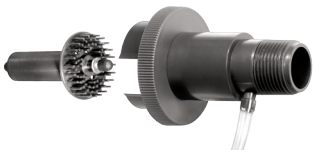
Description	UPC No. 0006760
Rio+ needle wheel impeller 1000	0853 9
Rio+ needle wheel impeller 1400	0854 6
Rio+ needle wheel impeller 2100	0855 3
Rio+ needle wheel impeller 3100	0856 0



Needle Wheel Impeller Conversion Kit

- Ceramic bearing and shaft
- Needle wheel made of high impact plastic
- Large intake venturi

Description	UPC No. 0006760
Rio Plus needle wheel impeller conversion kit 1000	1410 3
Rio Plus needle wheel impeller conversion kit 1100-1400	1407 3
Rio Plus needle wheel impeller conversion kit 1700-2500	1408 0
Rio Plus needle wheel impeller conversion kit 3100	1409 7



AVAILABLE MODELS

Item No.	Description	UPC No. 0006760
Rio Plus 50	69/262 GPH/LPH	1252 9
Rio Plus 50 UL	Mini Pump & Powerhead	0830 0
Rio Plus 90	85/323 GPH/LPH	1253 6
Rio Plus 90 UL	Mini Pump & Powerhead	0831 7
Rio Plus 180	120/456 GPH/LPH	1254 3
Rio Plus 180 UL	Mini Pump & Powerhead	0832 4
Rio Plus 200	138/524 GPH/LPH	0838 6
Rio Plus 200 UL	Pump & Powerhead	0816 4
Rio Plus 400	144/547 GPH/LPH	0839 3
Rio Plus 400 UL	Pump & Powerhead	0817 1
Rio Plus 600	200/760 GPH/LPH	0840 9
Rio Plus 600 UL	Pump & Powerhead	0818 8
Rio Plus 600 PT		0842 3
Rio Plus 800	211/801 GPH/LPH	0841 6
Rio Plus 800 UL	Pump & Powerhead	0819 5
Rio Plus 800 PT		0843 0
Rio Plus 1000 UL	271/1030 GPH/LPH Pump & Powerhead	0836 2
Rio Plus 1100 UL	382/1451 GPH/LPH Pump & Powerhead	0820 1
Rio Plus 1400 UL	420/1596 GPH/LPH Pump & Powerhead	0821 8
Rio Plus 1700 UL	642/2439 GPH/LPH Pump & Powerhead	0822 5
Rio Plus 2100 UL	692/2630 GPH/LPH Pump & Powerhead	0823 2
Rio Plus 2500 UL	782/2972 GPH/LPH Pump & Powerhead	0824 9
Rio Plus 3100 UL	900/3420 GPH/LPH Pump & Powerhead	0825 6

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Rio+ Aqua Pump/PowerHead



Technological Aquatic Associated Manufacturing
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Specifications & technical information may change without notice

APPLICATION

NOTE: When installing the pump for any application there will be extra parts.

APPLICATION I: Fountains, Water Features & Waterfalls (see figure A)

Rio® Plus pump is designed to run completely submerged in water. Do not operate pump outside of water! This pump should be submerged in water before connecting directly to a GFCI outlet. Do not operate pump without the main filter strainer. When using Rio Plus pump in fountains, water features and waterfalls the use of filter conversion kit is recommended as a pre-filter.

Follow all warning and safeguards

Rio Plus 50-800

Filter conversion kit 50-180 Item no. 000676002957
Filter conversion kit 200-800 Item no. 0006760001615

- 1. Verify that the pump size fits the application without dramatically restricting the flow. Consult your local dealer or manufacturer's guidelines for the proper size and model of Rio Plus pump.
- 2. Attach Rio Filter conversion Optional.
- 3. Choose discharge adapter option.
- 4. Position the pump so that the tubing used will not kink and connect it to the discharge adapter. Note do not reduce the diameter of the recommended output tubing.
- 5. Secure the tubing with a hose clamp.

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Rio Plus 1000-3100

Filter conversion kit 1100-1400 Item no. 000676005118
Filter conversion kit 1700-2500 Item no. 000676001585
Filter conversion kit 1100-3100 Item no. 000676004326

- 1. Verify that the pump size fits the application without dramatically restricting the flow. Consult your local dealer or manufacturer's guidelines for the proper size and model of Rio Plus pump.
- 2. Attach Rio Filter conversion Optional.
- 3. Choose discharge adapter option. See figure B.
- 4. Position the pump so that the tubing used will not kink and connect it to the discharge adapter. Note do not reduce the diameter of the recommended output tubing.
- 5. Secure the tubing with a hose clamp.

APPLICATION II: In-Tank Circulation

(see figure B)

Do not run on wavemakers or timers!

Rio® Plus pump is designed to run completely submerged in water. Do not operate pump outside of water! This pump should be submerged in water before connecting directly to a GFCI outlet. Do not operate pump without main housing strainer. When using Rio Plus pump in fountains, water features and waterfalls the use of filter conversion kit is recommended as a pre-filter.

Follow all warning and safeguards

Rio Plus 50-800

Filter conversion kit 50-180 Item no. 000676002957
Filter conversion kit 200-800 Item no. 0006760001615

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- 1. Choose a location for the pump.
- 2. If using the filter conversion kit remove the main housing strainer and attach filter conversion kit
- 3. Choose discharge options.
- 4. Secure to the aquarium using suction cups. Note verify that the surface that the pump is attached to is clean.
- 5. Verify the pump is secure and plug directly to a GFCI outlet.

Optional venturi attachment: Remove the air stopper and attach the airline tube and silencer to the venturi inlet. Note the venturi will not work if the pump is submersed more than 1 in from the surface.

Rio Plus 1000-3100

Note: Rio Plus 2500 and Rio 3100 are better used as sump or fountain pumps than water circulation pumps.

Filter conversion kit 1100-1400 Item no. 000676005118
Filter conversion kit 1700-2500HP Item no. 000676001585
Pro filter conversion kit 1100-3100 Item no. 000676004326

- 1. Choose a location for the pump.
- 2. Remove the main housing strainer and slide on either the suction cup bracket with suction cups or hanging bracket.
- 3. If using the filter conversion kit remove the main housing strainer and attach filter conversion kit.
- 4. Choose discharge options.
- 5. If securing to the aquarium using suction cups. Note verify that the surface that the pump is attached to is clean.

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- 6. Verify the pump is secure and plug directly to a GFCI outlet.

Optional venturi attachment: Remove the air stopper and attach the airline tube and silencer to the venturi inlet. Note the venturi will not work if the pump is submersed more than 1" from the surface.

APPLICATION III: Wet/Dry Filtration Systems, Protein Skimmer & Sumps

(see figure C)

Rio® Plus pump is designed to run completely submerged in water. Do not operate pump outside of water! This pump should be submerged in water before connecting to a power source. Use the flow chart to determine the proper water flow and tubing size. Do not reduce water flow of the pump by more than 15% using a control valve

Follow all warning and safeguards

Rio Plus 1000-3100

- 1. Remove main housing strainer.
- 2. Attach suction cup bracket and suction cups together, then slide on suction cup bracket set onto motor housing.
- 3. Output: Connect either outlet pipe adapter or flow control directly to the flexible tubing and secure with a hose clamp.
- 4. Submerge pump in water and plug directly to a GFCI outlet.

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Helpful Hints:

- 1. The use of a float valve will help ensure a consistent water level and ensure the pump will operate fully submersed at all times.
- 2. If the pump is making excess noise verify that the pump is free standing and is not vibrating against the wall of the sump.
- 3. Excess noise can be caused using too small of tubing restricting flow or restricting flow with a valve by more than 15%.

UNDER GRAVEL FILTER: (see figure D)

- 1. Remove the main housing strainer.
 - 2. Rio 1000-3100 HP attach either the suction cup bracket with suction cups or the pump hanger to the pump.
 - 3. Attach the undergravel filter strainer and undergravel filter adapter to the intake of the pump.
 - 4. Choose your choice of discharge adapter
 - 5. Verify the uplift tube is cut to the proper length so that the pump will be operated fully submersed
 - 6. Place the on top of the uplift tube.
 - 7. Plug directly to a GFCI outlet.
- Optional venturi attachment: Remove the air stopper and attach the airline tube and silencer to the venturi inlet. Note the venturi will not work if the pump is submersed more than 1in from the surface.

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INSTALLATION for 600PT-800PT

(see figure E)

Note: There may be variances when installing this pump directly to protein skimmer as there are many different protein skimmer manufactures. Consult with the manufacture of the protein skimmer for exact installation instructions for there specific skimmer.

- 1. The pump comes out of the box and is ready to run.
- 2. Connect directly to the intake of the protein skimmer.
- 3. Position the air tubing silencer outside the water.
- 4. Plug the unit directly to a GFCI outlet.
- 5. Verify that there is water and air entering the skimmer.

IMPORTANT: Do to the design of Wet/Dry Filtration and Sumps, there is a high amount of evaporation and failure maintain a consistent water level or the daily addition of top off water will cause the pump to operate without being fully submersed. If the pump is not operated fully submersed imminent malfunction to the pump will occur, thus resulting in loss of live stock and/or injury or loss of life. If the pump is not operated fully submersed at all times the warranty is void.

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TROUBLESHOOTING

PROBLEM: PUMP IS TOO NOISY

Reason & Solution:

- Wrong size flexible tubing is being used.
- Pump is touching the wall of the filtration.
- Flow has been reduced by more than 15% using a ball valve.
- Main housing strainer is clogged.
- Impeller and ceramic shaft needs to be cleaned.
- Broken ceramic shaft.
- Impeller was not reinstalled properly. Verify that ceramic shaft and shaft endcap is in place.
- Wrong size pump for the given application.
- If rigid PVC is used, connect a 1in piece of flexible tubing in between the pump and the rigid tubing. This will take tension off the pump and help reduce noise.

PROBLEM: PUMP WILL NOT START

Reason & Solution:

- Impeller needs to be cleaned.
- When reinstalling the impeller the rubber bushing where not installed on the shaft prior to replacing in the motor housing.
- Impeller will not rotate freely on ceramic shaft.
- Main housing strainer is clogged.
- GFCI has gone off and needs to be reset.
- When using a check valve has air is trapped in

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impeller well and intake elbow.

- Impeller and/or ceramic shaft are damaged and needs to be replaced.

TROUBLESHOOTING FOR RIO PLUS 600PT-800PT

PROBLEM: NO AIR

Reason & Solution:

- Verify that the air tubing with silencer is out of water.
- The venturi needs to be cleaned: Remove the silencer and place air tubing in a cup of warm water let the pump suck water through pump.
- If regular maintenance has not been preformed it may be necessary to remove the pump and disassemble the venturi. When doing so verify that all holes are clear. It may be necessary to soak parts in a vinegar water solution (3 parts water to 1 part vinegar.)
- Impeller and impeller well cover needs to be cleaned.
- The pump is positioned too deep in the water column, do not place the pump deeper than 6 in from the water level.

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PART LIST FOR ALL PUMPS

NOTE: When installing the pump for any application there will be extra parts.

- | | |
|--|---|
| 1. Main housing strainer | 12. Flow control |
| 2. Impeller endcap | 13. Elbow |
| 3. Impeller | 14. Duck bill |
| 4. Motor housing | 15. intake and output pipe adapter (optional) |
| 5. Suction cups | 16. Air tubing and silencer |
| 6. Suction cup bracket | 17. Air tubing |
| 7. Pump hanger | 18. Air intake elbow |
| 8. Pipe adapter | 19. Under-gravel filter adapter |
| 9. ¼ in MPT (option) | 20. Under-gravel filter strainer |
| 10. 3/8 in Pipe adapter | |
| 11. Discharge adapter with venturi jet | |

FLEXIBLE TUBING SIZE:

Rio+ 50-180: ½ in (13mm) or 3/8 in (9.5mm) ID
Rio+ 200-800: ½ in (13mm) ID
Rio+ 1000-2500: ¾ in (19mm) ID
or ¾ in (19mm) MPT
Rio+ 3100: 1 in (25.4mm) ID or ¾ in (19mm) MPT

MPT (Male Pipe Thread)

APPLICATION I: Fountains, Water Features & Waterfalls

Rio Plus 50-800

NOTE: Part No. 10 does not included in Rio Plus 200-800

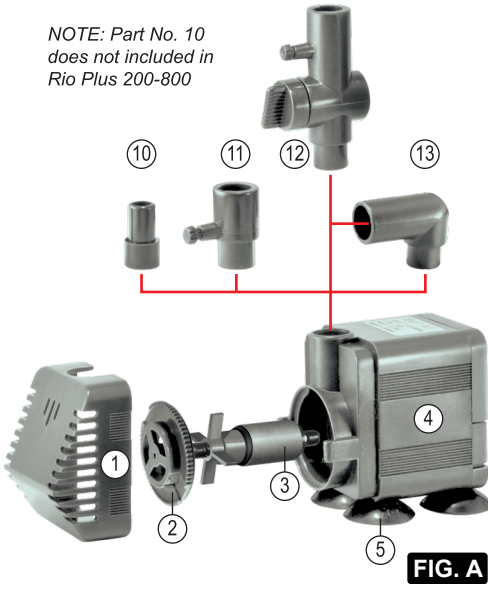


FIG. A

APPLICATION II: In-Tank Circulation

Rio Plus 200-800

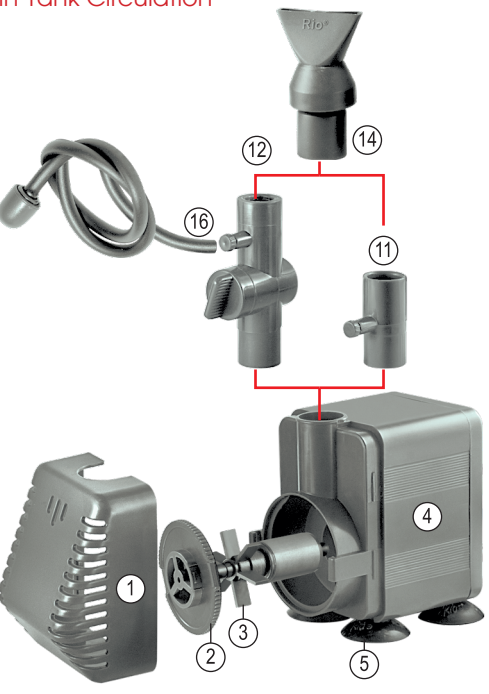


FIG. B

Rio Plus 1000-2500

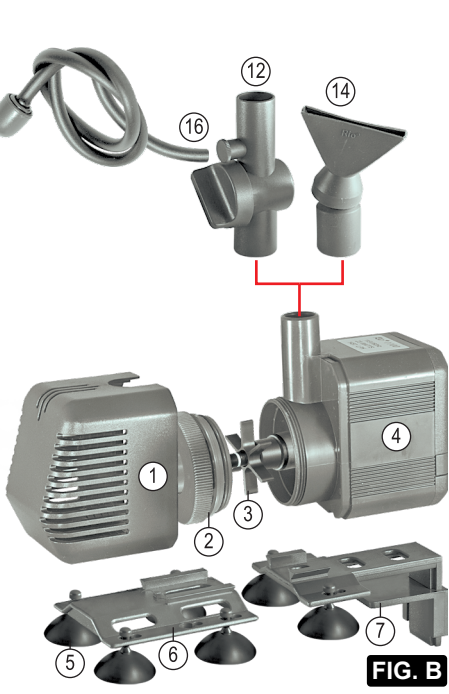


FIG. C

APPLICATION III: Wet/Dry Filtration Systems, Protein Skimmer & Sumps

Rio Plus 1100-2500

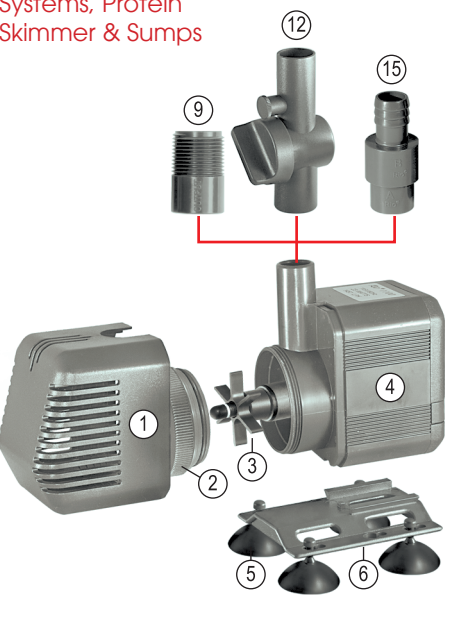


FIG. D

Rio Plus 3100

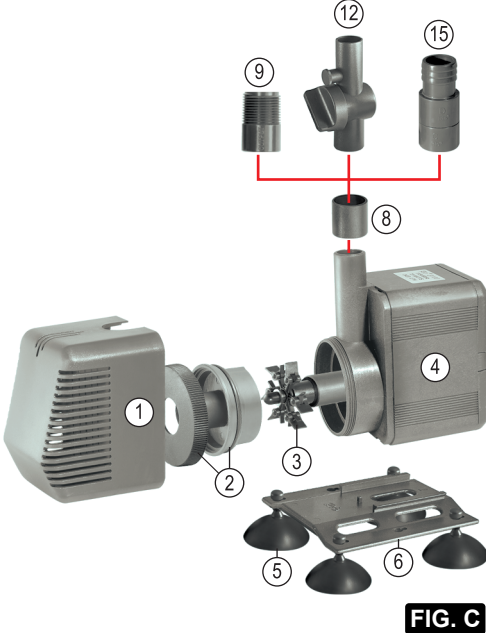


FIG. E

UNDER-GRAVEL FILTER

Rio Plus 200-800

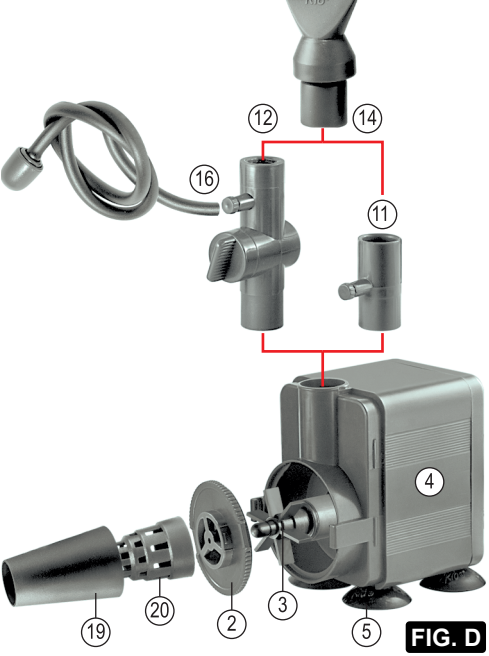


FIG. F

RIO PLUS 600-800PT

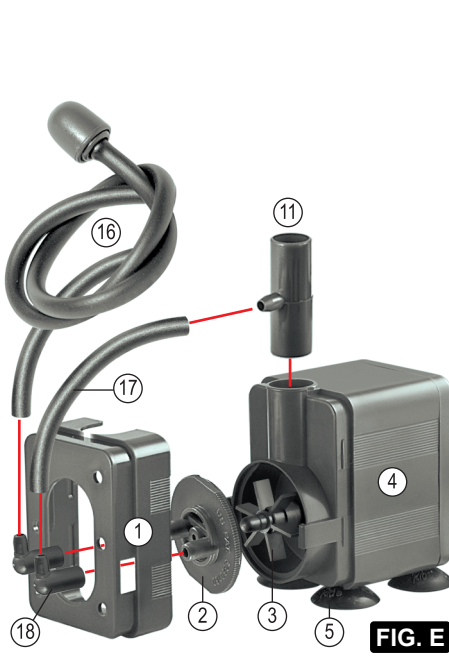


FIG. G